4) a- *à* t= $\tau 1$ on a $u_C = 0{,}63\ E = 2{,}52V$

Graphiquement $\tau = 5.10^{-3}s$

b- $\tau_1 = R_1 C \Rightarrow R1 = \dfrac{\tau}{C} = \dfrac{5.10^{-3}}{10^{-4}} = 50\Omega$

c- Lorsque $u_{R1} = u_C \Rightarrow u_C = 2V$

D'où $E_e = \dfrac{1}{2} C.u_C^2 = 2.10^{-4}\,J$

II- 1-a- Loi des mailles $u_C + u_{R2} = 0 \Rightarrow u_C + R_2 C \dfrac{du_C}{dt} = 0$

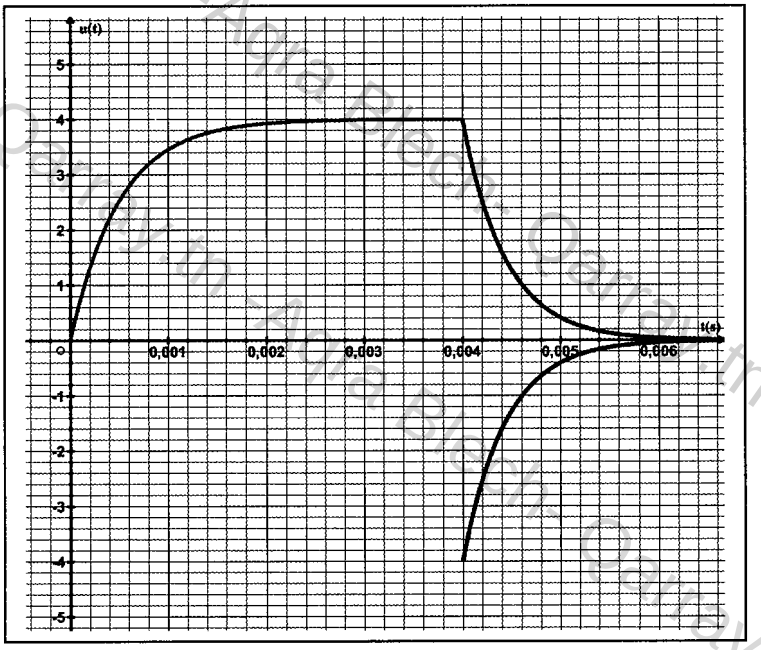
b- $u_C = Ee^{-\frac{t}{R_2 C}} \Rightarrow \dfrac{duC}{dt} = -\dfrac{1}{R_2 C} Ee^{-\frac{t}{R_2 C}}$

L'équation différentielle devient : $Ee^{-\frac{t}{R_2 C}} + R_2 C\left(\dfrac{-1}{R_2 C} Ee^{-\frac{t}{R_2 C}}\right) = 0$

c- $u_{R2}(t) = -u_C = -Ee^{-\frac{t}{R_2 C}}$

d- $\tau_2 = R_2 C = 40.10^{-4} = 4ms$

e-



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